A Program Planning Framework:
Energy Commission Staff Proposal
for the
Public Goods Charge Energy Efficiency Program

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This paper proposes an approach to developing future, and modifying existing programs to improve energy efficiency. This approach includes developing "portfolios" of related programs based on market research and "theory-based" evaluation principles. Staff believes that applying this new methodology for program planning will improve the effectiveness of energy efficiency programs and make program developers and implementers more accountable.

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A Work in Progress!

In preparation for its AB 1105 Report the California Energy Commission is developing an approach to program planning which will achieve "energy efficiency and conservation through sustainable cost-beneficial improvements in California's energy markets." The proposed planning framework is applying market knowledge, portfolio strategy, and theory-based evaluation to the design, testing, and implementation of program initiatives. The result is expected to be improved energy efficiency programs and more accountable program success for California ratepayers.

Public Goods Charge Program Goals

The overarching goal of California's Public Goods Charge (PGC) is to "achieve cost effective energy efficiency and conservation through sustainable, cost-beneficial improvements in California's energy markets." (AB 1105 Section 44, (b) (1)). Along with this comes a host of environmental, economic, societal and private benefits for California ratepayers. These benefits help justify PGC expenditures in the public eye and guide the specific program objectives toward realizing increased private business opportunities in and increased consumer demand for energy efficient products and services (AB1105 Section 44, b.3.A-B). Examples of these public purpose benefits include improved environmental quality, improved reliability, reduced energy costs, a thriving competitive energy efficient products and services industry, more informed customer choice, and enhanced quality of life. To obtain these benefits more specific goals are developed to guide in decision making on public program initiatives.

Since as many as 80 percent of new private products fail after entering the market, it seems likely that public initiatives will face similar odds. To lessen the uncertainty associated with expenditures of public funds on new programs, the California Energy Commission proposes integrating portfolio strategy with theory-based evaluation in designing and implementing programs. This means constructing a portfolio of mutually reinforcing programs aimed at a targeted market objective. The mix of programs would be based on a logical explanation of how and why this combination is expected to contribute to fulfilling specific goals which improve California energy markets.

Portfolio Strategy as a Means of Reducing Risk

A sound strategy for developing such a combination of synergistically reinforcing public initiatives is found in the use of ***portfolio strategy***. The key to developing an effectively diversified portfolio is in understanding which risks are relevant to the client. The major risk here is the possibility of spending ratepayer funds without a commensurate return to the ratepayer. The application of portfolio strategy to public programs can safeguard against three related aspects of this risk: ineffective programs, excessive cost, and incomplete program mix. Ineffective program design and implementation will produce little effect in the market or lasting benefit to ratepayers. In other cases, the benefits of the program may be real, but not cost-justified. The risk of an incomplete program mix is particularly great because markets are complex. Realizing lasting market transformation in any energy market may require using groups of programs to achieve a change.

The elements of our portfolio strategy framework synergistically guard against these risks. An understanding of market system dynamics lessens the risk of ineffective programs or an incomplete program mix. Targeting programs at strategic points of leverage in a market avoids excessive cost. Providing an up-front explanation of how the program is supposed to work builds in accountability and minimizes ineffective programs. Pilot testing program ideas in small increments strengthens program effectiveness and increases the probability of success. Beginning evaluation as soon as initiatives are in the field permits earlier modification or withdrawal thus reducing learning costs and the risk of ineffective programs.

Understanding the Market as a System

Constructing a successful portfolio requires learning how a target market functions as a whole system. For example, a complete portfolio targeting more efficient air conditioner technology must also target the missing feedback loop that currently prevents manufacturers from profiting from this equipment and makes the market unreceptive to this technology. The first step in gaining this understanding is a ***market assessment*** that combines available information from many sources, but especially market participants, into a plausible account of the market as a system. This means understanding relationships between parts of the market, exploring market actor behavior, and tracing the influence of the existing structure of rules, information and incentives. Above all, the assessment emphasizes understanding those aspects of the market most amenable to strategic leverage. Focusing public initiatives on the ***points of greatest system leverage*** will trigger self-reinforcing market changes that expand the ability of a market to improve its own long-term pattern of innovation well into the future.

Market Objectives Will Require a Variety of Program Styles

In California's diverse energy markets, a combination of differing but complementary program styles operating in a carefully planned fashion, may well offer more promise and less risk in achieving the desired public goals. For purposes of clarity, three styles are described here. The distinguishing feature of each is the portion of the market targeted.

- ***Resource acquisition programs*** target avoiding new power plant construction or the need for new transmission/distribution facilities as defined by specific time and place dimensions;

- ***Technology programs*** target accelerating market penetration and advancement of specific new and emerging technologies; and

- ***Market transformation programs*** target ***sustainable*** improvements in "the information environment, market rules, and other aspects of market structures." (AB 1105,Section 44, b.3.A-B.)

Recognizing and exploiting ways markets innovate is the key to sustainable market transformation. Energy efficiency markets (like all natural living processes) learn and evolve, innovate or fail to innovate, on the basis of how well ***feedback loops*** work. Using program styles that provide information to influence the mindset of market participants, or change the market rules that influence incentives and constraints, exerts the greatest leverage on market system performance. Instead of focusing on overcoming or reducing "market barriers," initiatives will focus on strengthening or adding feedback loops to improve the way markets learn about energy efficiency and innovate in response to that learning.

Each market-focused portfolio will be based on clearly articulated mutually reinforcing objectives. These objectives will come from the market assessments as well as external sources. For example, where specific ***portfolio objectives*** are well understood, "objective focused" solicitations would aim at encouraging creative program options to achieve the objectives. In markets where the relevant portfolio objectives are not yet well understood, a broader scope solicitation would aim at generating creative ideas on how to formulate objectives. The point is to generate as many creative ideas as possible from the bottom-up at this early stage. This method reinforces the sentiment for avoiding a top-down administrative approach as expressed by Don Link and the local government speakers at the August 23 workshop.

Using a Program "Story" to Reduce Risk and Improve Accountability

Each proposed idea will be subjected to an initial review based on its underlying assumptions about market dynamics and actors. Sponsors of the ideas will provide a "story" based on known facts and their market understanding that explains a sequence of causal steps linking program activities and outcomes. In other words, how will the program actions create specific desired changes in the market? By making these cause and effect assumptions explicit, the ideas can be probed and tested for plausibility. Some of the ideas and their associated assumptions are likely to fail this preliminary reality check. This pre-program plausibility check maximizes learning ***before*** major public funding commitments are made, thus avoiding waste on ill-conceived programs.

The use of this set of assumptions to provide an up-front logical explanation for ***how and why*** an initiative is expected to contribute to sustainable improvements is called a ***theory- or logic-based approach***. The process of thinking more carefully about the underlying assumptions will strengthen any style of program. At the August 23 workshop, for example, Rich Ferguson used the theory of supply and demand in the Sierra Club's resource acquisition-style proposal for a new competitively auctioned load reduction program. Theory- or logic-based evaluation is one method commonly used by social service non-profit funding agencies such as the United Way and the Kellogg Foundation for large community-based program efforts and others not well suited to statistical analysis of outcomes. More than 250 members participate in the American Evaluation Association's theory-based evaluation interest group.

Pilot Testing the Program Ideas Against Market Realities

Promising ideas that pass the preliminary assumption test will be gathered into portfolios of ***pilot initiatives*** and continuing programs for each of the targeted markets (existing evaluations of continuing programs may be sufficient to recommend their future status). This is a comparatively low-cost way of keeping multiple options open and further refining both continuing programs and new ideas. Real-time evaluation, the "***market test***," begins as soon as the pilot-scale initiatives are in the field to find out how the assumptions hold up against market realities. The focus in this approach is on the ***market responses*** that the activities of the pilot or continuing program should generate, not the activities per se. Using the initiative's "logic" as an evaluation guide will reveal whether poor or unexpected effects stem from flawed implementation or faulty program reasoning. Tying evaluation to the causal steps in an explanatory theory also gives a better sense of whether or not the program is responsible for observed changes.

By utilizing well-reasoned pilot initiatives, learning continues in the most cost-effective way. Many of the pilot initiatives and continuing programs will be fine-tuned in the field based on the ***collaborative work of program managers and evaluators***. Others may be replicated in different local areas for further testing. Only the most promising pilots will pass the market test and be ***scaled up for market-wide implementation***. These would then form new portfolios of long-term strategies for each target market's objectives. New knowledge is continually reinvested into fine-tuning promising initiatives into full programs and building understanding of the market as a system. Even failed pilot initiatives contribute to this continuing learning.

Integrating Theory with Portfolio Strategy Produces Better Programs and Longer-Term Benefits

The market transformation principles outlined in AB 1105 seek to increase the valuing of energy efficiency that occurs "naturally" in an evolving well-functioning market. It would be far easier to achieve short-term energy savings through strategies such as mandates or rebates. But by using the powerful incentives that markets provide for dynamic learning, discovery and innovation, the market transformation approach has the potential for continuing, and therefore, eventually much larger long-term energy saving benefits. Market transformation strategies, as a general rule, favor the least restrictive intervention into the market necessary to achieve long-term goals. Using a theory-based portfolio strategy provides a risk-reducing synergistic approach to realizing these longer-term benefits for California ratepayers through the PGC energy efficiency programs in the most cost-beneficial fashion.